



Innovate 3.0: Hack to Build

JIIYOUTH CLUB-128,Noida

JAYPEE INSTITUTE OF INFORMATION TECHNOLOGY,WISHTOWN CAMPUS,NOIDA



TITLE PAGE

- **Team Name:** AI (Aloo Intelligence) 🥔🧠
- **Problem Statement Title-** AI-powered Smart Agriculture Advisor: boosting Crop Yields and Farmer Decision-Making
- **Theme-** Open Innovation
- **Name of Team members:** Nitish Sheoran (Team Leader)
Narayan Prasad
Shyla Sharma
- **Leader:** Nitish Sheoran

KHETMITRA : AI-Powered Personal Farming Assistant for Farmers

Your AI-powered farming companion for smarter, sustainable harvests

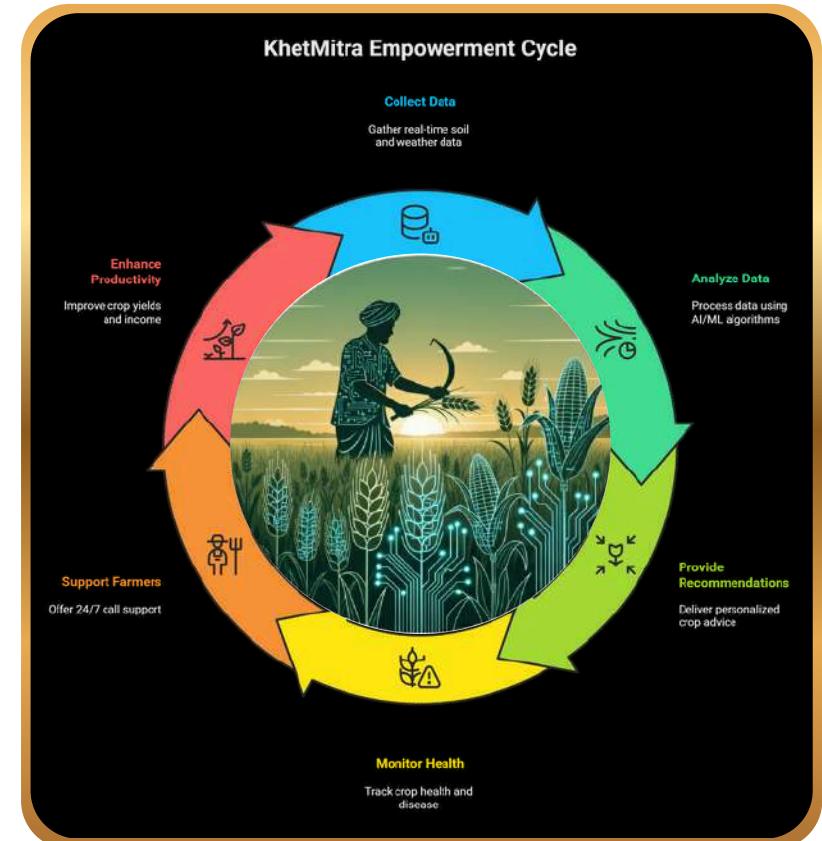
DETAILED EXPLANATION OF THE PROPOSED SOLUTION

KhetMitra uses soil sensors with an **ESP32 and SIM module** to collect real-time soil data, combined with weather, satellite data, soil maps, crop history, and current mandi bhav. AI/ML analyzes this data to recommend crops, predict yield and profit, monitor crop health, detect diseases, and support sustainable farming. The platform offers an **“end-to-end solution—from crop selection to selling”**—helping farmers make smarter decisions and boost productivity. It supports multiple languages, works offline for areas with poor connectivity, and provides 24/7 call support to assist farmers anytime.

INNOVATION & UNIQUENESS OF THE SOLUTION



HOW IT ADDRESSES THE PROBLEM





TECHNICAL APPROACH



TECHNOLOGIES TO BE USED

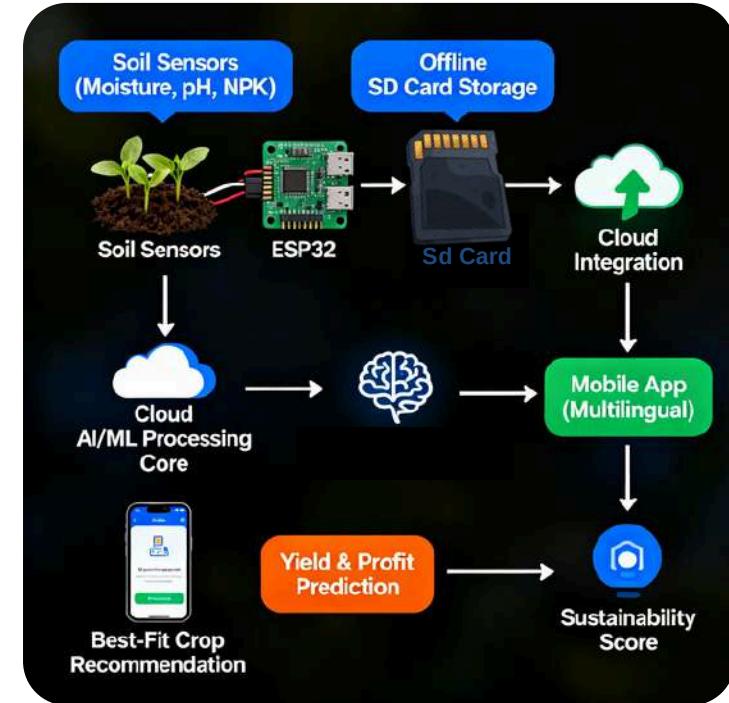
SOFTWARE:



HARDWARE:

- Soil Sensors (pH, Moisture, Nutrients)
- ESP32 Microcontroller
- SD Card Module
- IoT connectivity (Wi-Fi&4G).

METHODOLOGY & PROCESS OF IMPLEMENTATION



Website:-<https://www.khetmitra.live/>



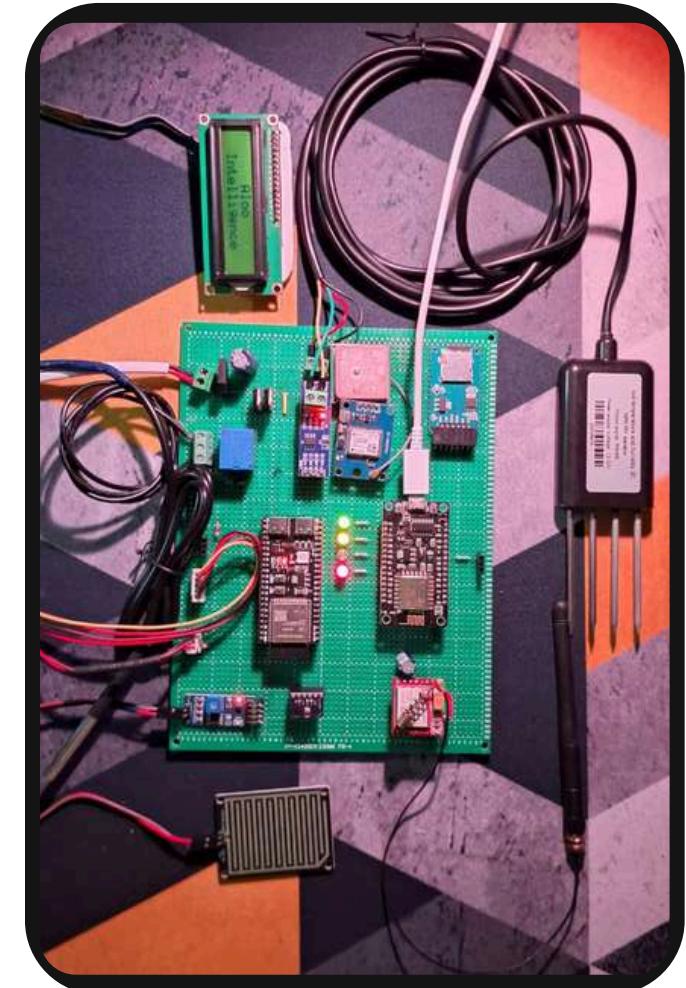
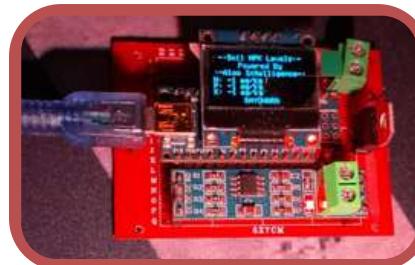
FEASIBILITY AND VIABILITY



FEASIBILITY ANALYSIS

Cost-effective at ₹4,500
Government policy alignment (PM-KISAN)
Multiple revenue streams & scalable model

PROTOTYPE IMAGES

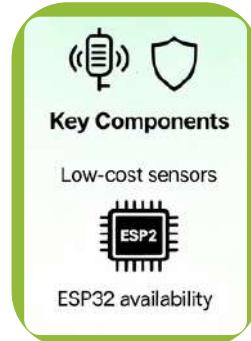


CHALLENGES & RISKS

- ⚠ CHALLENGES & RISKS
- Calibration accuracy
 - Rural connectivity gaps
 - Data privacy issues

STRATEGIES

- Field validation + calibration
- Offline data logging (ESP32 + SD card)
- Secure APIs + cloud encryption

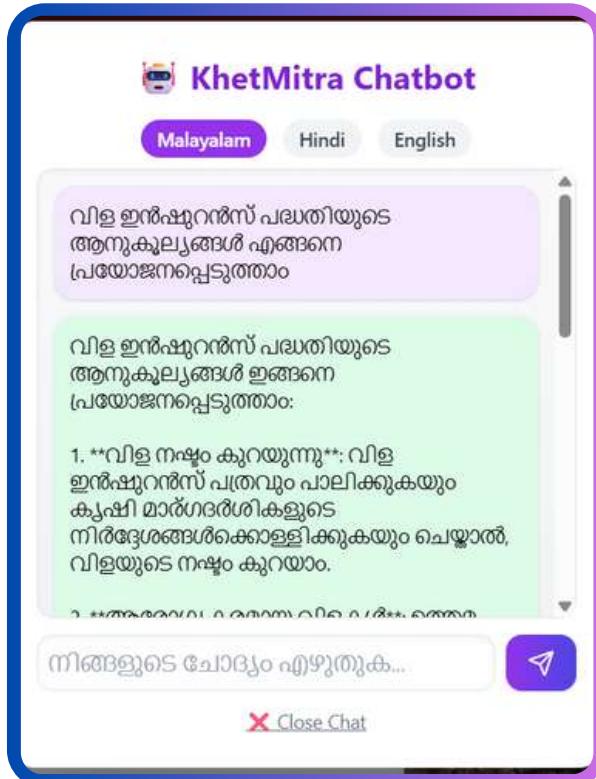




IMPACT AND BENEFITS

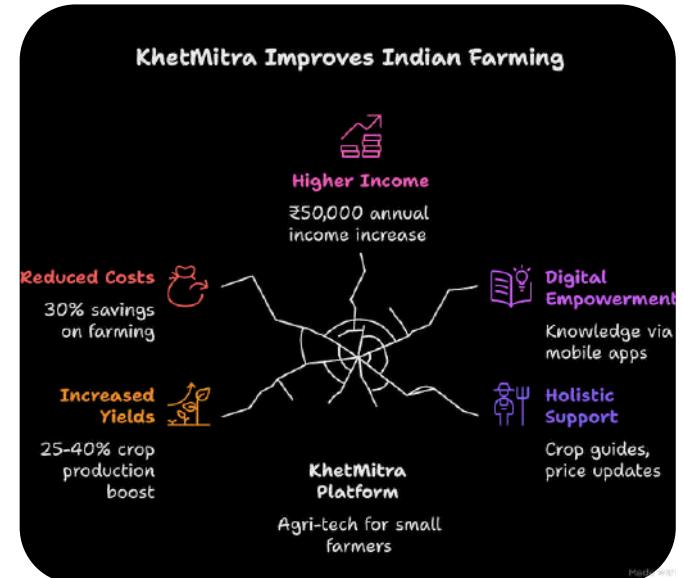


BENIFIT OF THE SOLUTION



POTENTIAL IMPACT

- Data-driven crop recommendations & yield prediction
- AI-backed insights replacing guesswork
- Smarter irrigation & fertilizer planning
- Real-time alerts (weather, pests, soil health, Grazing & High wind)
- Market linkage support for better income





Highlights of the Idea



- Real-time IoT-driven farming decisions using live NPK, soil moisture, and environmental sensor data
- AI-powered crop & fertilizer recommendations based on actual soil health, not generic datasets
- Context-aware intelligence (location, season, crop stage) for precise and personalized guidance
- End-to-end system: IoT hardware → backend APIs → AI decision engine → farmer-friendly interface
- Scalable & low-cost solution designed especially for small and marginal farmers
- Actionable insights, not just data — clear “what to grow, when to irrigate, and how much fertilizer”